

Name \_\_\_\_\_ Chemistry I: pH & pOH problems #2

Period \_\_\_\_\_ Date \_\_\_\_\_

ON A SEPARATE PIECE OF NOTEBOOK PAPER, complete the following problems.

SHOW ALL WORK!!!!!!!!!!!!!!!!!!!!!!

1. The hydroxide ion concentration of a soda is about  $2.0 \times 10^{-10}$ . What is the pH?
2. What is the pH of human muscle fluid in which the hydroxide ion concentration is  $6.2 \times 10^{-8}$  M?
3. The hydroxide ion concentration of arterial blood is  $2.5 \times 10^{-7}$ .  
What is the pH of blood?
4. The pH of a 0.10 M solution of  $\text{NH}_3$  containing 0.10 M  $\text{NH}_4\text{Cl}$  is 9.20.  
What is the  $[\text{H}_3\text{O}^+]$ ?
5. The pH of a 0.10 M solution of acetic acid is 2.89. What is the  $[\text{H}_3\text{O}^+]$ ?
6. The pH of the world's oceans is 8.15. Compute the  $[\text{H}_3\text{O}^+]$  in the ocean.
7. A detergent solution has a pH of 11.63. What is the  $[\text{OH}^-]$ ?
8. The pH of a saturated solution of  $\text{Mg}(\text{OH})_2$  is 10.50.  
What is the molarity of the hydrogen ion?
9. The pH of a solution of  $\text{Ca}(\text{OH})_2$  is 12.40.  
What is the molarity of the hydroxide ion?
10. The hydroxide ion concentration of lemon juice is about  $2.0 \times 10^{-12}$ .  
What is the pH?
11. A saturated solution of  $\text{Mg}(\text{OH})_2$  is  $3.2 \times 10^{-4}$  M. What is the pH of the solution?
12. A saturated solution of  $\text{Sr}(\text{OH})_2$  has a  $[\text{OH}^-]$  of 0.15 M.  
What is the pH of the solution?
13. What is the pH of a solution in which 20.0 mL of 0.10 M NaOH are added to 25.0 mL of 0.10 M HCl?
14. A 25.00 mL sample of 0.100 M  $\text{HC}_2\text{H}_3\text{O}_2$  is titrated with 0.100 M NaOH. What is the pH of the solution at the points where 24.0 and 24.5 mL of NaOH have been added? ( $K_a = 1.8 \times 10^{-5}$ )
15. What is the pH of a solution in which 10.0 mL of 0.010 M  $\text{Sr}(\text{OH})_2$  are added to 10.0 mL of 0.010 M HCl?